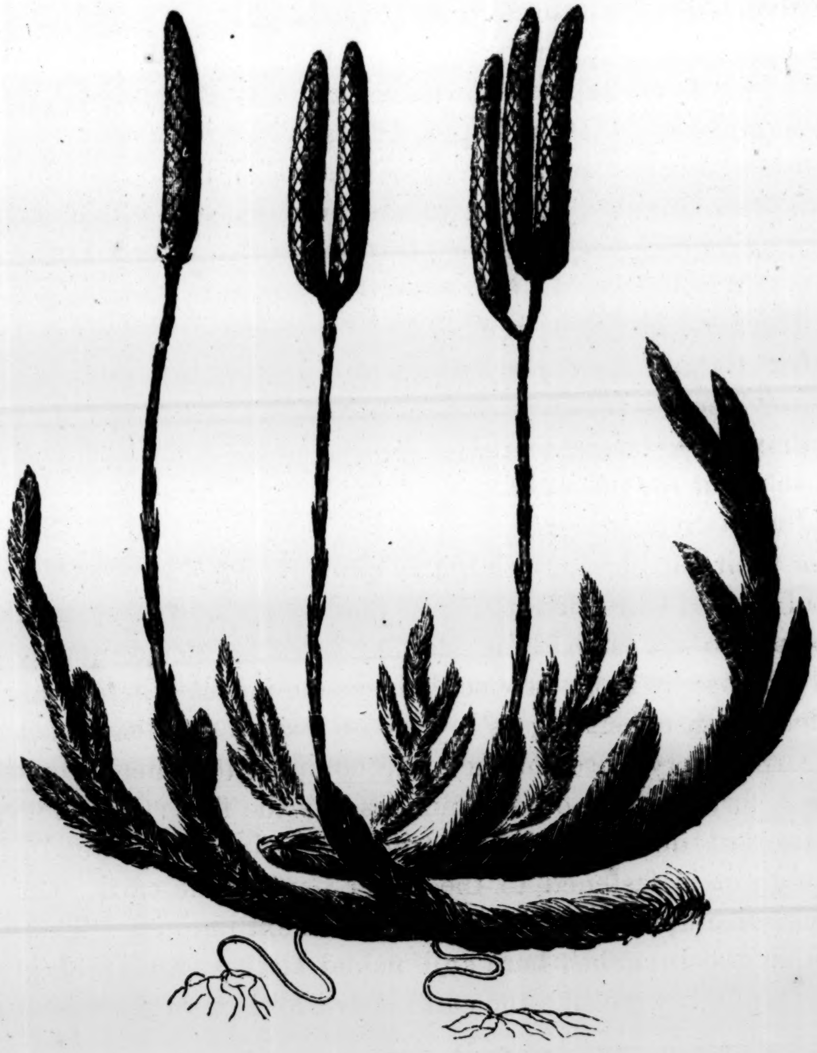
THE PHYTOLOGIST.

No. I.	JUNE, MDCCCXLI.	PRICE 6D.

ART. I. — *A History of the British Lycopodia, and allied Genera.*

By EDWARD NEWMAN.



COMMON CLUB-MOSS.

LYCOPODIUM CLAVATUM of Authors.

LOCALITIES.

England Wales Scotland Ireland	Universally distributed, on elevated moors and heaths.

THE Common Club-moss, Wolf's-claw, or Stag's-horn is the only species of Lycopodium that can be spoken of as abundant in Britain. It occurs on most of our moors and heaths, especially when rather more elevated than the surrounding country; for instance, in the vicinity of London it is found on Hampstead Heath, High Beech, the Addington Hills, &c. It is abundant on nearly all the mountains of the north of England, Wales and Scotland, and is found occasionally, but less frequently, in similar situations in Ireland.

This club-moss is a handsome and interesting plant. I have heard of a lady who had a ball-dress ornamented with its graceful festoons; and Linneus relates that in Lapland he saw the boys with their heads decorated with chaplets or wreaths formed of it, the double spikes projecting on all sides, a sight which reminded him of the fauns and satyrs:* and Tragus says that the girls in Germany make it into chaplets and belts.†

Old Gerarde has some remarks on the subject which are so pleasant, that I think my readers will not object to my quoting them at length. "There is another kinde of mosse which I have not elsewhere found than upon Hampstead Heath, neere unto a little cottage, growing close upon the ground amongst bushes and brakes, which I have shewed unto divers surgeons of London that have walked thither with mee for their further knowledge in simples, who have gathered this kinde of mosse, whereof some have made them hatbands, girdles, and also bands to tye such things as they have before gathered, for the which purpose it most fitly served; some pieces whereof are six or eight foot long, consisting as it were of many hairy leaves set upon a tough string, very close couched and compact together, from which is also sent forth certain other branches like the first: in sundry places there be sent down fine little strings, which serve instead of roots, wherewith it is fastened to the upper part of the earth, and taketh hold likewise upon such things as grow next unto it. There spring also from the branches bare and naked stalkes, on which grow certaine eares as it were like the catkins or blowings of the hasell-tree, in shape like a little club or the reed mace, saving that it is much lesser, and of a yellowish white colour, very wel resembling the claw of a wolfe, whereof it tooke his name, which knobby catkins are altogether barren, and bring forth neither seed nor floure." *

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* Vidi aliquando, grato spectaculo, pueros Lapponum ex hoc musco serta confecisse capitique suo eadem imposuisse, horrentibus undiquè spicis distichis, hirsutie Faunis et Satyris similes.—'Flora Lapponica,' p. 339.

† Virgines et serta et cingula ex hoc musco conficiunt.—'De Stirp. Nom.' 554.

It seems rather unaccountable that neither Gerarde, nor his able editor, Johnson, to whom, by the way, the great herbalist is indebted for the better half of his fame, should have so entirely overlooked the minute but multitudinous seeds, which have attracted the attention of so many other botanists. Olearius appears to have been the first to mention these seeds, and a curious purpose to which they have been applied. This author devotes the 24th chapter of the 4th book of his Itinerary to the fire-works of Ardebil, a town in Persia; and he believes them produced by the seeds of this Lycopodium. He observes, "We saw at a distance some flames rise suddenly in the air, and as suddenly disappear, and we supposed them to be produced by the Russian *Plaun*, which is much used for this purpose. The *plaun*, to explain more fully, is nothing more than a yellow dust which is beaten out of the Muscus terrestris. The moss is called in herbals *beerlap*† or *Devil's-claw*, and grows commonly in fir and birch woods, and also on waste lands; I have frequently met with it in the Russian and Livonian woods. It throws out twin cones, which, when ripe in August, are collected in large quantities and dried in furnaces; the powder is then beaten out and sold by the pound. I bought several ox-bladders full, and brought them home with me. Its other uses are in green wounds, recent bruises, and for chafed children, inasmuch as it is of a drying and healing nature, and it is moreover used by the Russians in the Chaldaic fire above spoken of. The powder is placed in a tin cases, of elongate conical form, about half an ell in length, or sometimes shorter; this is taken in the hand, and a burning light or torch is placed at the aperture, the case is then waved about in the air, so that the *plaun* flows through the aperture, and then ignites, producing a bright flame: when the motion is rapidly repeated, so that one flame follows another, it produces a very extraordinary effect. Fine fun may be made in company, if a tobacco-pipe be secretly filled with this *plaun*, and held at the light and blown into; a strong flame, suddenly and unexpectedly to those sitting around, proceeds from it, and that it may produce a great noise, they mix it with powdered birch-leaves. The plaun-powder has the property of igniting only when it is dusted through a flame in the air, and not otherwise, even if a torch or light be placed in it, or it be cast on live coals. In case the plaun is not to be obtained, finely powdered sweet-scented gum or rosin will answer the purpose, and this, besides the amusement, produces a pleasant smell. The plaun has no particular smell and produces no smoke."* Subsequent writers appear to have curtailed and garbled these interesting remarks, rather than verified them by their own observations.

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* Ger. Em. 1562.

† Tragus figures the plant under this name.

In some of the chemists' shops of this country the seed of Lycopodium is kept as an article of sale; and Mr. Luxford, who has tried the experiment, bears ample testimony to its inflammable property. The demand for this article, as may be supposed, is extremely limited, yet a friend has informed me that he is acquainted with a chemist who has received an order for several pounds weight of it; the purpose for which this large quantity was required is unknown. Sir J. E. Smith says that the seeds are still sold in the shops in Germany for the purpose of producing artificial lightning on the stage:† this use must however be very limited, on account of the difficulty of procuring the seed in any quantity; and moreover, as mentioned above by Olearius, pulverised rosin is found to be a cheap and efficient substitute. I have lately been informed that these seeds, spread upon a plate of metal, have been employed in Chladni's lectures to illustrate the vibration produced by sound.

The medical properties of the common club-moss have been greatly extolled by our earliest writers. Tragus gives a flaming account of its virtues, the chief of which seem to be the removal of calculus by comminution, and the cure of gout;‡ Matthiolus,§ Camerarius,‖ Lobel,¶ Tabernæmontanus,** Ray,†† and Dillenius,‡‡ appear to have taken these virtues for granted, as they have copied them without hesitation. Ray indeed adds several others, and asserts that a decoction of its leaves was used in Poland as a cure for a disease called Plica, whence, he observes, the plant has been named Plicarius;§§ and John Bauhin, in addition to many other valuable properties, states that loose teeth may be fixed by washing the mouth with a decoction of the seed in red wine.* I am, however, inclined to think that its use in either of these capacities must have been much less extensive than its historians imagined; indeed, from certain references, it seems not improbable that many of its supposed virtues owe their origin to a passage in Dioscorides, on a plant which he calls Muscus marinus, and which, beyond all doubt, is one of the Algæ. Mr. Ward informs me that whatever may have been its pristine fame, it holds no place in the modern Pharmacopœia. Tragus observes that the Germans call the plant Weingrein, from its power of restoring injured wine.† The same observation is repeated by his successors.

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* Olearius, 'Itin. Muscovit. Persic.' lib. iv. cap. 24. † Eng. Fl. iv. 331.

‡ Vinò decoctus ac potus calculos comminuit; * * nonnulli etiam aquam ex eo distillant, adeadem affectionem. Muscus contusus aut in vino decoctus dolorem et inflammationem sedandi vim obtinet, ideoque podagræ calidæ impositus prodest. Tragus, 555.

§ Matthiolus, Valgr. i. 57. ‖ Camerarius, Epitome, 32. ¶ Lobelius, 645.

** Tabernæmontanus, 1201. †† Ray, Hist. 120. ‡‡ Dillenius, Hist. Musc. 441.

§§ Apud Ruthenos et Lithuanos ad Plicam morbum gentibus illis endemium adhibitur, unde Plicarium et Cingularium eum nominant. Syn. 107.

Lightfoot, in his 'Flora Scotica,' says that the Swedes make mats of the club-moss to rub their feet on; if this be true, it is remarkable that the fact should have escaped the notice of such observant men as Linnæus and Wahlenberg; neither of whom makes the slightest allusion to the subject. Is it possible that Lightfoot has made free with the remark in Wahlenberg's 'Flora Suecica,' that the Swedes call the plant *Mattegräs,* ‡ a most appropriate name, being simply equivalent to matted grass, and not at all implying its employment in the manufacture of mats?

The older botanists have generally called this species *Muscus terrestris,* or *Muscus clavatus:* Cordus terms it *Chamæpeuce,* or dwarf fir: and all writers since the establishment of the Linnean binominal nomenclature, have agreed in naming it *Lycopodium clavatum.* It is figured by Tragus, Lobel, Tabernæmontanus, Cordus, Gerarde, John Bauhin, Plukenet, Matthiolus, Camerarius, Dillenius, &c., but with the exception of the figure by Dillenius,‖ none of them give a very accurate idea of the plant; of later representations, that in the 'Flora Danica'¶ is perhaps the best, but even this does not approach in accuracy or freedom of drawing the admirable figure by Dillenius.

The roots of this species are very tough, wiry, and pale in colour; they are generally nearly straight and simple for an inch or more, then suddenly divided and tortuous; they are usually placed singly and at rather long distances from each other, and do not penetrate deeply into the earth, but yet fix the creeping stem most firmly, and prevent any injurious action from the wind. It has been supposed that on lofty mountains this plant, forming as it does a compact matted turf, whence the Swedish name, serves to bind the surface of the soil more closely together, and thus secure it from the continued crumbling away to which, in exposed situations, it is constantly liable, from the effects of wind and rain.

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* In eodem [rubro] vino coctus, si eo abluatur os, tremulos dentes confirmat. Hist. iii. 759.

† Muscus terrestris vino pendulo impositus, intra paucos dies illud restituit. * * Hinc quidem apud Germanos muscum terrestrem Weingrein nominant. Tragus, 555.

‡ Suecis Mattegräs. Wahlenberg, 'Flora Suecica,' 684.

‖ 'Historia Muscorum,' tab. lviii. fig. 1.

¶ Tab. 126.

The stem is procumbent and repeatedly branched, the branches being at first slightly elevated, but soon becoming completely prostrate. It extends to a great length; I have frequently found plants on Crooksbury Hill, near Farnham, in Surrey, spreading to a circumference of ten or twelve yards. The whole plant has a rigid, harsh, and wiry feel when handled, even in a living state, and more especially when dried. When the plant is about to produce seed, there are thrown out from various parts of its branches, spikes of about an inch in length, of a pale sulphur colour, and in shape somewhat resembling catkins; these are usually double, but some few are single, and a still smaller number treble; they are erect and straight until the seed has been shed, when they become curved; they are situated on a stalk about twice their own length, and nearly naked, a character which is sufficient to distinguish this from any other of our indigenous species, and which gives to the plant, when growing luxuriantly, as I have seen it at Cwm Idwal and other parts of Caernarvonshire, a most striking and beautiful appearance.

The whole of the branches are densely covered with narrow, flat, ribless, smooth leaves, the edges of which are slightly toothed, and the tips terminate in a filamentous point: the leaves as well as the stems are persistent; I have observed them in March and April perfectly uninjured by our severest winters. On the stalks supporting the spikes the leaves are longer, narrow, and of a pale yellowish green colour; they are closely pressed against the stalk, and disposed somewhat in whorls, thus giving to the stalk the appearance of the stem of an Equisetum; they also in a great degree want the long filamentous points which are invariably present on the leaves of the prostrate branches, to the extremities of which they often give a hoary appearance. In the spike itself the leaves are very much broader at the base, being altogether of a more triangular figure, and assuming the appearance and office of bracts; their colour is a pale yellow, and their margins are membranaceous and serrated. After the seed has escaped, these leaves or bracts become reflexed, giving to the spike a very altered character and appearance.

The thecæ are somewhat reniform, perfectly sessile, and of a pale yellow colour: they are situated at the base of the bracts; each is two-valved, and filled with numerous minute and almost impalpable seeds, from which in cultivation young plants may be raised with little difficulty.

EDWARD NEWMAN.

(To be continued).

ART. II. — *Descriptions of two new species of Maxillaria, from the Organ Mountains, Brazil.* By FREDERICK WESTCOTT, Esq., A.L.S., &c.

Birmingham, March 26th, 1841.

Sir,

The two new Maxillarias described below, are natives of the Organ Mountains; and, with many other apparently new species, were sent over from Brazil to the Birmingham Horticultural Society, in the spring of 1840, by E. W. Fry, Esq.

Yours &c.
FRED. WESTCOTT.

To the Editor of 'The Phytologist.'

Natural Order.—ORCHIDACEÆ, *Lindl.* Tribe.—VANDEÆ, *Lindl.*

Genus.—MAXILLARIA, *Ruiz et Pavon.*

Max. barbata. Pseudo-bulbis inæqualitèr quadrangularibus, corrugatis, vaginatis: foliis ovatis, costatis, acutis: floribus racemosis; sepalis inæqualibus, petalis majoribus, lateralibus explanatis, apice subinvolutis; labello cucullato, trilobato, barbato, margine crispo, apice gibboso, disco carnoso.

Pseudo-bulbs quadrangular, wrinkled; at the apex of each is a cup-like cavity, which surrounds the base of the leaves when present; sheaths twice as long as the pseudo-bulb. Leaves solitary, ovate, ribbed, acute. Scape arising from the base of the pseudo-bulb, slender, smooth, and about six inches high. Flowers about eight, yellow, disposed in a raceme. Bracts about two lines long, brown and scarious at the edges, and closely embracing the peduncle. Peduncle about one inch long. Sepals unequal, yellow, involute at the apex, the lateral ones spread out, the upper one more or less connivent. Petals obtuse, of the same colour as the sepals, but much smaller. Labellum bearded, cucullate, three-lobed, and having a fleshy excrescence on the disk; darker in colour than the sepals and petals, and marked in the centre and on the lateral lobes with a dark purple spot. Column short and minutely pubescent on the back, in the upper part. Stigmatic cavity angular, membranous and three-lobed, the central lobe subulate. Clinandrium entire. Caudiculæ two, distinct. Gland transverse. Pollen-masses compressed, sulcate. Anther-case one-celled, and minutely pubescent like the column.

This species in habit, in the form of the pseudo-bulbs, and in the foliage, is very similar to *Max. tetragona*, but the flowers are altogether different, and bear a resemblance to those of *Max. aureo-fulva*, Hook., figured in the 'Floral Cabinet,' ii. plate 83.

> *Max. purpurascens.* Pseudo-bulbis ovatis vel conicis, sulcatis: foliis duobus, lineari-lanceolatis, apiculatis: floribus solitariis, glabris; sepalis æqualibus, lanceolatis, apiculatis, supremo connivente, lateralibus labello parallelis; petalis conniventibus, linearibus, sepalis brevioribus; labello trilobato, margine purpureo maculato, glabro, disco carnoso; antherâ subpubescente.

Rhizoma growing along the top of the pot and sending off pseudo-bulbs, which are ovate or conical and furrowed. Leaves two, about four inches long, linear-lanceolate, and pointed at the apex. Scape about six inches high, smooth, tinged with purple and bearing a solitary flower at the apex. Flower smooth, internally yellow, externally purple. Bracts about half an inch long. Sepals about an inch long, apiculate at the apex; the lateral ones arranged parallel with the labellum, the upper one connivent over the petals and column. Petals much smaller and shorter than the sepals, and as long again as the column. Labellum smooth, three-lobed, the middle lobe recurved at the margin, the apex of the lateral lobes beautifully spotted with purple. Column smooth. Clinandrium smooth or slightly pubescent. Stigmatic cavity round. Caudiculæ two. Gland transverse, crescent-shaped. Pollen-masses two, each of which is divided into two distinct parts. Anther one-celled, somewhat compressed and slightly pubescent.

This species is very different in habit from the preceding. It possesses a creeping rhizoma, which throws out ovate or subconical pseudo-bulbs from its upper surface; the leaves are also much narrower, and the scape is of a pleasing purple colour. In size and form the flowers nearly resemble those of *barbata*, but are solitary and of a different colour. *Maxillaria aureo-fulva*, *barbata* and *purpurascens* possess double caudiculæ (as is the case also in the genus Bifrenaria), and their inflorescence in other respects differs so much from that of any other species of *Maxillaria* with which I am acquainted, that they may be considered as forming a very distinct group of the genus.

FRED. WESTCOTT.

ART. III. — *Description of a Primula, found at Thames Ditton, Surrey, exhibiting characters both of the Primrose and the Cowslip.* By HEWETT COTTRELL WATSON, Esq., F.L.S. &c.

THE circumstances under which this oxlip was found, rather than any peculiar character in the plant itself, induced me to exhibit it at the meeting of the London Botanical Society on Friday last.

For several years past I have been in the custom of traversing the fields and coppices of Thames Ditton and the adjoining parishes, and have particularly looked out for oxlips, but until the present spring not a single plant of the kind has been observed, while cowslips and primroses are abundant in many places. The oxlip in question was found in an old orchard, where the ground is very damp, and in summer much shaded by trees. Numerous plants with the true cowslip and primrose characters were growing about this solitary oxlip; and I could not see another specimen on again visiting the spot a week later, when more of the cowslips had come into flower. It should be remarked, however, that as I had never before been within the orchard, I cannot say that oxlips had not grown there in preceding years. I had frequently walked down a lane which runs alongside the orchard, and observed that it contained both cowslips and primroses; and was again doing so, when the showy flowers of the oxlip attracted my attention, and induced me to cross the hedge for it. The mention of an orchard might lead to a supposition that the plant had been introduced; but this appears to me improbable, since the fruit-trees grow in grass only, there being neither dug ground, nor any garden plants except the fruit-trees, which are chiefly apples. All the circumstances lead to a reasonable presumption, that this solitary oxlip had originated from a seed either of the cowslip or primrose; yet its characters are so completely intermediate between the two, that I can give only the slightest preponderance in favour of the cowslip.

The plant I imagine to have been of three years' growth, and that this is the second year of its flowering. It had four umbels, only on eof them having the flowers expanded when the plant was taken up. Besides these umbels there were half-a-dozen solitary flowers and buds on as many separate scapes; all the single-flowered scapes springing from the same point amongst the leaves clustered on the head of the root, or rather, subterranean stem. The calyx is intermediate between those of the cowslip and primrose. The corolla has the deep colour of the cowslip flower, but in size, and in the flatness of the limb, approaches much nearer to that of the primrose. The leaves of the present year have the colour and nearly the form of those of the cowslip, but two or three large half-withered leaves, of last year as far as can be now ascertained, resembled more decidedly those of the primrose. If these old leaves had not been seen, I should have pronounced the plant a cowslip, notwithstanding the size and flatness of the corolla, and the few single-flowered scapes.

The specimen exhibited at the meeting was only half the plant; the other part is planted in my garden, where I hope to watch its flowers next spring.

After finding this one specimen, I examined the cowslip and primrose localities all around with renewed diligence, and found a second oxlip a mile or two from the first, and in a situation very different, except in being damp. It was growing amongst many cowslips in a pasture field, with primroses not many yards distant, and in every respect resembled the other cowslips, except that the corolla had the pale tint and almost the shape of the primrose; being considerably larger than the cowslip, but smaller than the primrose. This plant had been crushed under the foot of a cow; and its leaves were small and the scapes short, and bearing few flowers: it was obviously injured and unhealthy.

Primroses, self-sown, spring up freely in my garden, and the seedlings occasionally produce umbelliferous scapes; but in other respects they have hitherto retained all the characters of the wild primrose, except varying in colour from pale yellow to different shades of red, and occasionally exhibiting monstrosities in the calyx.

I may remark that young botanists sometimes mistake a late state of the common cowslip for the oxlip. After the germen is fertilized, the flowers of the former become erect; the limb of the corolla loses its concave form, and when large and vigorous it bears at this stage some resemblance to a small primrose flower.

Thames Ditton, HEWETT C. WATSON.
April 19, 1841.

ART. IV.—*Notice of 'A Flora of Shropshire.'* By W. A. LEIGHTON, B.A., F.B.S.E. London: Van Voorst. 1841. *With additional Notes on many of the Plants described in the Work.*

PREVIOUSLY to the appearance of this excellent work, there was no regular Flora of Shropshire in existence; the only illustrations of the Botany of that county being contained "in the county lists of plants in 'Camden's Britannia,' the 'Botanists' Guide' [by Turner and Dillwyn], and the 'Agricultural Survey,' and the few notices scattered throughout the works of How, Ray, Purton, Withering and Smith:" and the only record left by any botanist of the result of his investigations in this district, is a MS. catalogue of the plants of Shropshire, with their localities, compiled by the Rev. E. Williams, which still remains unpublished in the hands of the Right Hon. Lord Berwick, who liberally allowed Mr. Leighton to make unreserved use of its contents. In this catalogue are enumerated 715 species of flowering plants and 300 species of Cryptogamia.

The present volume of the 'Flora of Shropshire' is complete in itself, and is restricted to the Vasculares, of which it contains characters and full descriptions of 876 species, arranged according to the Linnæan system, with synonymes and references; and a copious list of localities is attached to the less common plants.

It was at first the intention of the author, that this work should "appear as a mere catalogue of plants, with localities and observations," but he was ultimately induced to present it in the more extended form of a descriptive Flora. To render it "more complete and comprehensive than could be effected by his single and unaided efforts, circulars, containing queries and heads of enquiry, were distributed, to which many friends of science resident within the district most cheerfully and liberally responded."

In the list of friends to whom the author returns thanks for assistance rendered in this and other ways, we notice the names of many of the first botanists of the day, including Professors Don, Graham, Lindley and Nees ab Esenbeck, Dr. Bromfield, Messrs. Babington, Borrer, Bowman, Dovaston (the friend and biographer of Bewick), Forster, and E. Lees.

"In the preparation of the work the invaluable Floras of Smith [2nd ed.] and Hooker [3rd ed.] were taken as text-books; and the Shropshire plants have been compared with their descriptions, and also, when requisite, with the works of Koch, Fries, Reichenbach, Bluff and Fingerhuth, and other continental botanists. The descriptions have been, so far as practicable, invariably drawn up from careful examination of living or dried specimens, at the same time adopting such portions of the information conveyed by these authors, as a comparison with nature dictated, and rejecting it where apparently new and better characters displayed themselves."

Several valuable data towards the elucidation of the geographical distribution of the Shropshire plants, have been communicated by Dr. T. O. Ward, of Shrewsbury; and in a complete index of localities the geology of the county is exhibited from Murchison's 'Silurian Regions:' the geological relations of the plants being by this means clearly pointed out.

Many plants are recorded as occurring in Shropshire, which have been discovered and published as British since the appearance of Sir J. E. Smith's 'English Flora,' in 1828. The detection of these new forms, whether regarded as species or varieties, is the result of that spirit of enquiry and research which is now directing the labours of the most eminent of our British botanists, and which we believe to have sprung, in a great measure, from a desire to enable the progress of Botany in this country, to keep pace with its rapid advance on the continent. The following is a list of such of the species new to Britain as are described in the work before us; but the book itself must be consulted in order that an adequate idea of the mass of valuable information contained in it may be formed.

- Veronica polita, *Fries.*
    - Buxbaumii, *Tenore.*
- Valerianella carinata, *Lois.*
- Potamogeton oblongus, *Viviani.*
- Viola arvensis, *Murray.*
- Cuscuta Epilinum, *Weihe et Nees.*
- Rumex pratensis, *Mert. et Koch.*
- Dianthus plumarius, *Linn.*
- Spergula vulgaris, *Bonningh.*
- Reseda alba, *Linn.*
- Cerasus Avium, *Mœnch.*
- Rubus fissus, *Lindl.*
    - discolor, *Weihe et Nees.*
    - carpinifolius, *Weihe et Nees.*
    - vulgaris, *Weihe et Nees.*
    - villicaulis, *Weihe et Nees.*
- Rubus Radula, *Weihe et Nees.*
    - Leightoni, *Lees, MS.*
    - Köhleri, *Weihe et Nees.*
    - echinatus, *Lindl.*
    - fusco-ater, *Weihe et Nees.*
    - pallidus, *Weihe et Nees.*
    - Schleicheri, *Weihe et Nees.*
    - dumetorum, *Weihe et Nees.*
- Ballota ruderalis, *Fries.*
- Cardamine sylvatica, *Link.*
- Malva vulgaris, *Trag.*
- Hypericum tetrapterum, *Fries.*
- Senecio erraticus, *Bert.*
- Habenaria chlorantha, *Bab.*
- Callitriche platycarpa, *Kun.*
    - pedunculata, *DeCand.*

We have here a list of upwards of thirty new plants found in the county, thirteen of which belong to the genus Rubus. Whether many of the numerous reputed species of this genus will ultimately be allowed to retain that rank, is at present exceedingly doubtful. In hardly any genus throughout the whole range of botanical science, does so much uncertainty prevail with regard to the limits of species, as in the genus Rubus: and it really must afford great comfort to botanical tyros, who have been puzzled by these most vexatious plants, to find that the great masters in Botany, — those who have paid particular attention to this difficult genus, are so completely at fault in their endeavours to determine the species, as the conflicting opinions appended to the descriptions of the forms arranged under the fruticose or bramble division of the genus, most evidently show them to be. Nor, after the perusal of these opinions, can we feel any surprise at finding the following remarks from the pen of Mr. Leighton himself, who is well known as an ardent botanist. "To the examination of the Shropshire brambles I devoted two successive summers, and collected specimens of every form which came under my notice, in which any conspicuous differences were observable. But, notwithstanding some care and attention, the strange and inconstant manner in which similar forms, and even what were apparently distinct ones, in innumerable instances varied or ran into each other, precluded me from arriving at any definite conclusions as to the limits and true characters of the estimated species, and in fact left me in a complete maze of doubt and ignorance whether they should not all be considered as modifications endlessly varied of one and the same species." Mr. Leighton then distributed his specimens to Nees von Esenbeck, Professor Lindley and Mr. Borrer, and solicited their opinions. "In consequence, however, of their severally referring the same forms, in many instances, to different and opposite species, I found that no other alternative was left to me than to describe from the specimens submitted to them the various forms of the genus, and append to each description their opinions and remarks."

We are very glad that Mr. Leighton has prefaced these descriptions with the well-known and often-quoted observations on the genus by Mr. Borrer* and Professor Lindley,† because we believe that the fact of the uncertainty respecting species which prevails in many British genera, though perhaps in none to so great a degree as in Rubus, cannot be too frequently or too prominently brought forward. For as in politics "agitation" is the watch-word when a party would attain an object on which they have set their affections, even so must the same means be resorted to whenever the energies of the cultivators of science are to be awakened, and their exertions directed to any desired end. The paramount importance of attention to "the limits within which a species may vary," has been most ably argued by the Rev. Professor Henslow in 'The Magazine of Zoology and Botany' for August, 1836, and 'The Magazine of Natural History,' iii. 406; and unless, as recommended in those valuable communications, a series of experiments and observations be instituted and carefully conducted, having for their express object the elucidation of this interesting, but at present most unsettled question; and unless, in addition to direct experiment, all the observed variations from what are considered the normal forms of plants, with the circumstances accompanying such variations, be carefully and precisely recorded;—we fear it will be long ere an approximation to the truth will have been attained. Our pages will ever be open to the reception of the results of such investigations; and it will give us great pleasure if by our means one single fact should be added to the existing stores of botanical knowledge, which may tend, however remotely, to the attainment of that important desideratum — the more exact determination of species.

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* Hook. Br. Fl. i. 245.

† Synopsis, 2nd. ed. 91.

It is not so easy to make suitable quotations from the pages of a Flora as from those of a connected narrative, whether in poetry or prose, and the illustrative observations contained in the work before us are all so valuable, that we find some difficulty in determining which to select: we must, however, lay before our readers some few specimens of the highly interesting contents of the book, at the same time taking the liberty to introduce occasional remarks on such of the plants of Shropshire as have fallen under our own observation in other parts of the country.

Veronica scutellata, Linn. "A variety with the whole herbage hairy occurs on some boggy ground north of Bomere Pool, and at the east end of Blackmere." As Mr. Leighton does not mention the colour of the flowers of this variety, we suppose it to be the same as that of the plant in its usual state. Several years ago we found, in some boggy ground near Bloxwich, in Staffordshire, two specimens of what appears to be a weak, prostrate variety of this species, with the leaves short, ovate-lanceolate and rather hairy, and the flowers *blue:* the plants, except in the colour of their flowers, closely resembling the *Ver. parmularia*, of Poit. et Turp. 'Fl. Paris.' tab. 14, which is *Ver. scutellata* β of 'Eng. Fl.' i. 21.

Veronica polita, Fries, the *Ver. agrestis* of 'Eng. Bot.' 783, may readily be distinguished from that species by the bluish green hue and less succulent appearance of the whole plant, in which we have never observed any disposition to assume a red or purple colour, as in certain situations *agrestis* may frequently be seen to do; the peduncles in *agrestis* are shorter than the leaves, and the cells of the capsule contain few seeds, whereas in *polita* the leaves are shorter than the peduncles and sharply serrated, and the cells of the capsules are many-seeded. These two species are admirably figured in 'English Botany,' *polita* in tab. 783, and *agrestis* in tab. 2603 (Suppl.) In the Shropshire Flora the latter species is said to be "common," while the former is described as being "rare;" we have observed these conditions to be reversed in many parts of Surrey.

Veronica Buxbaumii, Tenore, 'Fl. Neap.' i. 7; 'Eng. Bot. Suppl.' 2769; the *Ver. filiformis* of Johnston, 'Fl. Berw.' i. 225, and Hook. 'Br. Fl.' ed. 1, p. 6; distinguished from *Ver. polita* and *agrestis*, to both which it is allied, by the form of the capsule, which is compressed, obcordate, and in breadth nearly double its length, with its lobes divaricated, sharply keeled, smooth and veiny. We possess specimens raised from seeds which had been sent from Sussex by Mr. Borrer, the original discoverer, to one of our friends, (now deceased); these seedlings exhibit all the characters of their parents. Some botanists look upon this as a doubtfully-indigenous species, believing it to have been either introduced with crops, or to have escaped from cultivation; in a paper read before the Botanical Society, Nov. 10, 1836, after giving two new Scottish localities for this species, Professor Graham remarks that he "had not seen either station, but was inclined to believe with Dr. Dewar [the authority for these localities], that the plant had not been introduced, because it had only lately been cultivated, and probably has not been so yet near either of these stations."—First Report, p. 34.

Pinguicula vulgaris, Linn. Mr. Leighton observes,—"On the gradual decay of the leaves in autumn, small, round, leafy buds or hibernacula are formed, which survive the winter, and are capable of developing new plants in the spring." Our excellent friend Mr. Cameron, of the Birmingham Botanic Garden, first pointed out to us these hibernacula on Sutton Common in Warwickshire, April 17th, 1835; when we also had the gratification of finding in flower, for the first time, the local Eriophorum vaginatum, the silvery grey glumes of its spikes being nearly hidden by the prominent yellow anthers. On the 23rd of May in the same year we paid a second visit to the Common, and found the Eriophorum in seed, with its beautiful silky heads waving in the breeze; the Pinguicula was then in full flower, as were also Eleocharis cæspitosa, Vaccinium Vitis-idæa, Empetrum nigrum, and several other plants which rewarded our researches the same day. One specimen of Pinguicula vulgaris which we then gathered, has the flower-stalk divided, at about half an inch from the base, into four branches, of different heights, each bearing a solitary flower at the summit.

Mr. Leighton does not mention the irritability exhibited by this species of Pinguicula, nor is it alluded to by either Smith or Hooker. When the plant is dug up the leaves bend backwards and downwards, so as completely to conceal the root; the flower-stalks also become curved. This action we have frequently observed in the Pinguicula vulgaris; but as we have never had an opportunity of collecting either of the other British species, we are not aware whether they also exhibit the same irritability; the leaves of our specimens of *Pin. alpina* are however deflexed quite as much as those of *vulgaris*, whence we infer that the two species are thus acted on in an equal degree; in our specimens of *Lusitanica* and *grandiflora* the leaves are not at all deflexed.

Rhynchospora alba, Vahl. Two varieties of this species are recorded as growing with its usual form, and in nearly equal abundance, at Bomere Pool and on Twyford Vownog, near Westfelton; one with the corymb as long as the outer bracteas, and the other having the spikelets in a somewhat oval head, shorter than the outer bracteas. For other particulars relating to this species and *Rhyn. fusca*, see 'Mag. Nat. Hist.', viii. 675.

Referring to *Festuca pratensis*, Huds. and *Fes. arundinacea*, Schreb. (*Fes. elatior*, Linn.; E. Fl. i. 148; E. Bot. 1593; Hook. Br. Fl. 50), at p. 51, Mr. Leighton remarks, "After a careful comparison of the two preceding very closely allied species, I have been unable to discover any satisfactory characteristic distinctions, and am induced to consider them only as modifications of the same plant. The chief differences assuredly consist in the larger size of F. arundinacea, the ovato-lanceolate not linear form of the spikelets, and the number of florets, yet all these may possibly depend on soil and situation producing a more vigorous growth and a suppression of development in the florets. No dependance can be placed on the awns of the corolla, since they are equally present or absent in both plants, nor on the roots, which are in both somewhat creeping and the fibres downy. In deference, however, to the authority of our British Floras, they are here retained as separate species."

(To be continued).